ITMC
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STATE OF MONTANA
DEPARTMENT OF ADMINISTRATION
INFORMATION TECHNOLOGY MANAGERS ADVISORY COUNCIL

Brian Schweitzer
Governor

To: Dick Clark, CIO

From: ITMC Energy Efficiency Sub-Committee

Date: March 31, 2008

Re: ITMC Recommendations for 20x10 Initiative

The ITMC Energy Efficiency Sub-Committee was formed at your request at the December 2007 ITMC meeting.

Our scope was to research and provide recommendations to you regarding a range of technology related measures that agencies may employ to help reduce energy usage. This is in support of the Governor's 20 x 10 Energy Efficiency Initiative. Recommendations include individual use of state computers, agency use of technology, and statewide IT policy recommendations.

Sub-Committee members include staff from the departments of: Environmental Quality, Transportation, Fish Wildlife and Parks, Corrections, Administration, Revenue, and the Arts Council.

The following recommendations are listed in order as Immediate Energy Saving Measures, or Longer Term Energy Saving Measures.

Immediate Energy Saving Measures:

- Power workstation and peripheral equipment off at the end of the work day.

According the "PC Energy Report 2007" from the Alliance to Save Energy, as many as 60% of people that use a PC in the workplace don't always shut them down at the end of the day and 20% never shut them down. The same report states that each PC left on over night without hibernation or sleep modes enabled will use approximately 635.1 kWh (kilowatt-hours) per year. The actual number of PC's in state government left on over night is unknown. It is not unreasonable to assume that Montana is representative of the figures described above. This represents the single largest short-term solution to reducing energy consumption by IT resources.

Powering off computers during non-work hours may present problems for agencies that use this time to apply security patches to workstations. Those agencies may need to examine alternative patching protocols to accommodate this energy saving measure.

At this time most agencies apply patches at login so powering computers off after work hours should not be a problem. The largest single obstacle to the successful implementation of this recommendation is user non-compliance. This can be overcome by: agency policy or directives, education of users, possible use of technology to assure that machines are shut down during non-work hours.

Powering off peripheral equipment includes monitors, speakers, printers, etc. This may be done manually or by using a "Smart Strip" or "Smart Plug" device that powers peripherals down when the computer is powered down.

- Enable better power management on all workstations.

The same report mentioned above states that 50% of PC's do not have "hibernation" or "sleep" modes enabled. This figure is probably higher for our users since the state has experienced problems with machines that were set to "hibernate". The hibernation would cause machines to be disconnected from the network and users experienced productivity losses.

The Sub-Committee's research indicates that problem can be eliminated. We therefore recommend that ITSD work with a small group of agency technical experts to establish a protocol for the enterprise to follow that will ensure problems associated with power management are mitigated.

- Purchase computing devices that are more energy efficient.

Historically, computer energy consumption has been less of a concern than performance. We have typically paid more for better performing machines regardless of energy consumption. This tendency is changing. Computer manufacturers are responding and offering solutions that are compatible with the needs of organizations concerned with reducing energy consumption.

  - Energy Star certified computers are required to use 15 watts or less of electricity (less than 10% average peak usage) but only when they enter a "sleep" or "hibernation" mode. (PC Energy report 2007) Most PC's being purchased in state government are Energy Star certified. Virtually all state approved vendors provide options for energy star devices.
  - Energy efficient CPU's.
  - "Size" machines appropriately for intended use or environment.
  - Examine the use of "Thin Client" machines for use in certain business cases.
  - Eliminate CRT's in favor of LCD screens. Most are gone already but some still survive.

- Reduce the number of individual printing devices.
  - Network printers instead of personal printers.

  Many agencies currently do a pretty good job of providing users access to network printers. Until July 2007 the network device charges of $72.60 per month for each network printer influenced many agencies to opt for desktop printing devices. Currently, fees charged to agencies for network access are based on individual users and not devices. Individual stand-alone printers are no longer a fiscally superior choice with this change in the monthly network rate methodology. This is especially true related to power consumption since most stand-alone printers stay powered on 24 hours a day while most networked printing devices have the ability to go into a "power save mode" during periods of inactivity.

  - Consolidate network printers.

  In many cases network printers are placed so that regular black & white printers are near a color printer since both are typically needed. These can be consolidated into one printer thus reducing the energy usage. The default settings should include printing in black & white so print jobs that do not specifically need to be in color will not waste toner supplies or the energy used in multiple pass color printing. If a user needs a color print job, they can easily adjust the settings for that job.

  - Set printing defaults to duplex.

  As mentioned above, these settings do not preclude users from changing the printer settings for individual print jobs. It does assure that most print jobs will use both sides of a sheet on duplex capable printers (indirect savings of energy, direct savings of paper).

- Utilize on-line collaboration tools to reduce travel and increase productivity.

Many agencies in state government currently use some form of on-line collaboration such as "WebEx" or "GoToMeeting" to reduce overall costs as well as energy consumption. State government can expand this use by making an enterprise effort to provide these tools to more individual staff members. This will have an impact on state network resources and should therefore be an enterprise-wide coordinated effort.

These tools can enhance the use of tele-workers as a solution for agencies by making the home or remote employee more accessible to the work place. They also provide a convenient low cost alternative to meetings that would otherwise require many people to travel to one place to see a presentation or training session.

ITSD is currently working on an Enterprise License Agreement (ELA) with Microsoft that includes licensing the company's Live Meeting product. Use of this product as an enterprise standard would potentially make online collaboration available to all staff in a very short period of time.

- Encourage use of video conferencing.

Video conferencing is another excellent collaboration tool to help lower energy costs and increase staff productivity. This is especially true for state agencies with offices and staff located throughout the state. In addition to energy and staff cost savings, video conferencing empowers more employees to participate in discussions with colleagues in remote locations.

- Don't forget telephone conferencing.

Longer-Term Energy Saving Measures:

- Server Virtualization and Consolidation.

Most server purchasing decisions consider reliability and performance over costs of power consumption. Recently, server density (number of servers in a given space) has prompted organizations to consider solutions like blade servers and server virtualization. The problem is that not all organizations have the resources to look at these options. In fact many that do have the resources should consider sharing with other agencies the expense and responsibility of providing a reliable efficient server environment. As an enterprise we can realize significant savings in energy consumption by reducing the total number of servers in use.

- Purchasing Practices that encourage efficient energy use.
    - Purchase from manufacturers that offer energy efficient choices.
    - Include energy efficient provisions in procurement contracts. (i.e. require contractors to make efforts to purchase energy efficient equipment)
    - Supply standard specifications for energy efficient equipment purchases for all agencies to use.